FINTECH AND MACROECONOMIC VARIABLES: EMPIRICAL EVIDENCE FROM PANEL DATA

By

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MASTER OF SCIENCE (FINANCE)

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By

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ABSTRACT

Fintech is a mixture of imaginative action plans and innovation that have a negative and positive impact on the services or financial product when implemented in the framework. For two decades, progress in the field of information technology (IT) has also been fundamental a reality for the ongoing application and dissemination of the Internet and online enterprises. The main motivation of this research is to identify the relationship between Fintech and macroeconomic variables towards economic growth. It is crucial to fully understand the relationship between financial technology and economic growth in order to determine the growth factor and on the other hands to determine the investment allocation to this type of telecommunication infrastructure. Hence, this study aims to disentangle the possible significant relationships between fintech with economic growth. The objective of the research will be employed by using by panel data from ten countries for year 1998-2017. In order to answer the objective of this research, the method to be employed is panel ordinary least squares (POLS) which to estimate how dependent variable reacts when there is an increase in independent variables, granger causality test is to determine the direction of causality between all variable and Pedroni cointegration test to determine the existence of cointegration between the variables in the long run equilibrium. Based on empirical findings, there does exist a long relationship between fintech and the economic growth. Besides that the estimated result show that other independent variables such as mobile user exist bidirectional causality with fintech in the long run meanwhile it exist unidirectional causality relationship between broadband and mobile user. Furthermore, in Pedroni cointegration test confirmed that there is existence of cointegration among the selected variables. In other word there have long run equilibrium between mobile user, broadband, import, export and inflation with economic growth. In order to adopting financial technology across the countries the regulator must ensure that more information technology infrastructure is built, such as providing additional infrastructure in conjunction with current needs and encouraging people to work with Fintech by highlighting the benefits they can gain by using the technology. Furthermore, the government can grant subsidies to network suppliers to build more mobile cellular networks and increase the line coverage particularly in rural areas and equally increase in the use of Fintech

Keywords: economic growth, fintech, granger causality test, panel ordinary least square (POLS), Pedroni cointegration test

ABSTRAK

Fintech adalah campuran pelan tindakan imaginatif dan inovasi yang mempunyai kesan yang negatif dan positif kepada perkhidmatan atau produk kewangan apabila dilaksanakan dalam pembangunan ekonomi negara. Selama dua dekad, kemajuan dalam bidang teknologi maklumat (IT) juga pada dasarnya menjadi realiti untuk aplikasi dan penyebaran internet dan perusahaan dalam talian yang sedang berkembang maju. Motivasi penyelidikan ini adalah untuk mengenal pasti sumbangan individu terhadap pertumbuhan ekonomi dan menyediakan rangka kerja untuk menilai kepentingan fintech kepada pertumbuhan ekonomi. Adalah penting untuk memahami sepenuhnya hubungan antara teknologi dan pertumbuhan ekonomi untuk menentukan faktor pertumbuhan dan di sisi lain untuk menentukan peruntukan pelaburan untuk jenis infrastruktur telekomunikasi ini. Oleh itu, kajian ini bertujuan untuk melihat hubungan yang mungkin antara fintech dengan pertumbuhan ekonomi yang Keluaran Dalam Negara Kasar (KDNK) digunakan untuk mewakili pertumbuhan ekonomi dan pemboleh ubah yang digunakan adalah pengguna mudah alih, jalur lebar, import, eksport dan inflasi. Kajian ini telah dianalisis dengan menggunakan data panel bagi sepuluh negara terpilih untuk tahun 1998-2017. Untuk menjawab objektif kajian ini,ujian-ujian yang dijalankan adalah Panel Ordinary Least Square (POLS) yang menganggarkan bagaimana pemboleh ubah bergantung kepada tindak balas apabila terdapat peningkatan pembolehubah bebas, ujian granger causality adalah ujian untuk menentukan arah penyebab antara semua pembolehubah dan ujian integrasi Pedroni adalah untuk menentukan kewujudan integrasi bersama antara pembolehubah dalam keseimbangan jangka panjang. Berdasarkan penemuan empirikal, terdapat hubungan yang panjang antara fintech dengan pertumbuhan ekonomi. Di samping itu, hasil yang diperolehi menunjukkan bahawa pembolehubah bebas lain seperti pengguna mudah alih mempunyai kaitan dua hala dengan fintech dalam jangka masa panjang dan hubungan satu arah antara pengguna jalur lebar dan mudah alih. Selain daripada itu, ujian integrasi Pedroni mengesahkan bahawa terdapat kewujudan integrasi bersama antara lima pembolehubah yang digunakan. Dalam erti kata lain, terdapat keseimbangan jangka panjang antara pengguna mudah alih, jalur lebar, import, eksport dan inflasi dengan pertumbuhan ekonomi. Untuk perkembangan teknologi kewangan di seluruh negara pengawal seliaan mesti dilakukan bagi memastikan bahawa lebih banyak infrastruktur teknologi maklumat dibina contohnya seperti menyediakan infrastruktur tambahan bersempena dengan keperluan semasa dan menggalakkan orang ramai untuk meneroka bidang fintech dengan menonjolkan faedah yang mereka dapat dengan menggunakan teknologi tersebut. Disamping itu, kerajaan boleh memberikan subsidi kepada pembekal rangkaian untuk membina lebih banyak rangkaian selular mudah alih dan meningkatkan liputan talian terutamanya di kawasan luar bandar.

Kata kunci: pertumbuhan ekonomi, fintech, granger causality ujian, panel OLS dan ujian integrasi Pedroni

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Lastly, special thanks to my superior and officemate in TMCC Alor Setar for listening, offering me advices, and supporting me through this entire process. I am a indebted to all my wonderful friends with whom I have interacted during the course of my graduate studies, also who had contributed either directly or indirectly to this study, your good companionship, valuable advice and also sharing memories will never be forgotten.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

CHAPTER 1

INTRODUCTION

1.1 Introduction

Fintech is an industry term that encompasses all sorts of financial service technology from business to consumer and describes any company providing software or other technology financial services that include everything from mobile payment to cryptocurrency. Fintech generally aims to attract customers with more user-friendly, efficient, transparent and automated products and services than those currently available. Traditional banks have not yet exhausted the options for improvements in this direction (Mackenzie, 2015).

In addition to the provision of products and services in the banking industry, fintech also distributes insurance and other financial instruments or provides services to third parties. In a generous sense, Fintech covers companies that simply supply financial service providers with the technology such as software solutions. On the basic of the findings from many researchers, therefore we can conclude that Fintech is a mixture of imaginative action plans and innovation that have a negative and positive impact on the services or financial product when implemented in the framework. In this study, the term 'Fintech' was used to define the standards for all previous studies about Fintech as a short form of financial technology.

Nowadays, the news reports are full with stories about transformation of technology solution especially in developing countries. It start from farmers in Kenya using mobile phones to access the Internet to connect with the insurance agent to protect their crops (DAWN Media Group, 2009), to the centre of China's internet to a remote village (Fong 2009), to the Indian fisherman use mobile phones to market with the demands of the largest for their products (Jensen, 2007), evidence of the impact of

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APPENDICES

APPENDIX A

Dependent Variable: GDP
Method: Panel Least Squares
Date: 04/02/19 Time: 18:06
Sample (adjusted): 2000 2016
Periods included: 17
Cross-sections included: 10
Total panel (unbalanced) observations: 133

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MOBILE_USER	-0.065825	0.016463	-3.998439	0.0001
BROADBAND	0.125951	0.055199	2.281779	0.0242
IMPORT	-0.136874	0.059542	-2.298789	0.0232
EXPORT	0.127921	0.049534	2.582485	0.0109
INFLATION	0.127814	0.042366	3.016888	0.0031
C	6.003647	0.567155	10.58554	0.0000

R-squared	0.222037	Mean dependent var	5.151002
Adjusted R-squared	0.191409	S.D. dependent var	3.039612
S.E. of regression	2.733271	Akaike info criterion	4.892938
Sum squared resid	948.7876	Schwarz criterion	5.023330
Log likelihood	-319.3804	Hannan-Quinn criter.	4.945925
F-statistic	7.249373	Durbin-Watson stat	1.382977
Prob(F-statistic)	0.000005		

APPENDIX B

DESCRIPTIVE ANALYSIS

	GDP	MOBILE_USER	BROADBAND	IMPORT	EXPORT	INFLATION
Mean	5.151002	30.93593	4.695128	16.18974	17.58847	4.368666
Median	5.584847	25.07330	1.762920	11.27897	15.57399	3.662384
Maximum	15.24038	90.00000	27.85759	51.47694	54.97448	22.67332
Minimum	-2.465515	0.226983	0.000396	1.328809	0.016555	-22.09142
Std. Dev.	3.039612	24.71157	6.946115	13.51198	16.79328	6.028499
Skewness	-0.345806	0.490857	2.112231	0.817478	0.511069	-0.204368
Kurtosis	3.961605	2.028409	6.857576	2.522884	1.926418	7.071585
Jarque-Bera	7.775021	10.57211	181.3620	16.07484	12.17695	92.79448
Probability	0.020496	0.005062	0.000000	0.000323	0.002269	0.000000
Sum	685.0832	4114.479	624.4521	2153.236	2339.266	581.0326
Sum Sq. Dev.	1219.580	80607.31	6368.803	24099.70	37225.89	4797.249
Observations	133	133	133	133	133	133

APPENDIX C

Pairwise Granger Causality Tests
Date: 03/09/19 Time: 11:18
Sample: 1998 2017
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
MOBILE_USER does not Granger Cause GDP	172	6.22822	0.0025
GDP does not Granger Cause MOBILE_USER		4.60531	0.0113
BROADBAND does not Granger Cause GDP	136	0.57960	0.5616
GDP does not Granger Cause BROADBAND		1.25474	0.2886
IMPORT does not Granger Cause GDP	123	0.12455	0.8830
GDP does not Granger Cause IMPORT		4.01484	0.0206
EXPORT does not Granger Cause GDP	123	0.55034	0.5782
GDP does not Granger Cause EXPORT		2.80041	0.0648
INFLATION does not Granger Cause GDP	180	1.80437	0.1676
GDP does not Granger Cause INFLATION		4.52238	0.0122
BROADBAND does not Granger Cause MOBILE_USER	131	2.51946	0.0846
MOBILE_USER does not Granger Cause BROADBAND		1.51451	0.2239
IMPORT does not Granger Cause MOBILE_USER	123	0.72801	0.4850
MOBILE_USER does not Granger Cause IMPORT		7.56186	0.0008
EXPORT does not Granger Cause MOBILE_USER	123	1.00635	0.3687
MOBILE_USER does not Granger Cause EXPORT		2.26998	0.1078
INFLATION does not Granger Cause MOBILE_USER	172	2.18954	0.1152
MOBILE_USER does not Granger Cause INFLATION		7.93417	0.0005
IMPORT does not Granger Cause BROADBAND	106	0.60757	0.5467
BROADBAND does not Granger Cause IMPORT		1.25976	0.2881
EXPORT does not Granger Cause BROADBAND	106	1.06405	0.3489
BROADBAND does not Granger Cause EXPORT		0.84428	0.4329
INFLATION does not Granger Cause BROADBAND	136	1.21432	0.3002
BROADBAND does not Granger Cause INFLATION		3.37415	0.0372
EXPORT does not Granger Cause IMPORT	123	5.08549	0.0076
IMPORT does not Granger Cause EXPORT		1.28084	0.2816
INFLATION does not Granger Cause IMPORT	123	0.24709	0.7815
IMPORT does not Granger Cause INFLATION		0.59615	0.5526
INFLATION does not Granger Cause EXPORT	123	0.13632	0.8727
EXPORT does not Granger Cause INFLATION		0.53162	0.5891

APPENDIX D

Pedroni Residual Cointegration Test
Series: GDP MOBILE_USER BROADBAND IMPORT EXPORT INFLATION

Date: 03/09/19 Time: 14:30
Sample: 1998 2017
Included observations: 200
Cross-sections included: 8 (2 dropped)
Null Hypothesis: No cointegration
Trend assumption: No deterministic trend
User-specified lag length: 1
Newey-West automatic bandwidth selection and Bartlett kernel

Alternative hypothesis: common AR coefs. (within-dimension)

	Statistic	Prob.	Weighted Statistic	Prob.
Panel v-Statistic	-2.287561	0.9889	-2.124759	0.9832
Panel rho-Statistic	1.386362	0.9172	1.835920	0.9668
Panel PP-Statistic	-10.47710	0.0000	-5.672534	0.0000
Panel ADF-Statistic	-3.615216	0.0002	-2.197850	0.0140

Alternative hypothesis: individual AR coefs. (between-dimension)

	Statistic	Prob.
Group rho-Statistic	3.498398	0.9998
Group PP-Statistic	-7.562051	0.0000
Group ADF-Statistic	-2.008587	0.0223

Cross section specific results

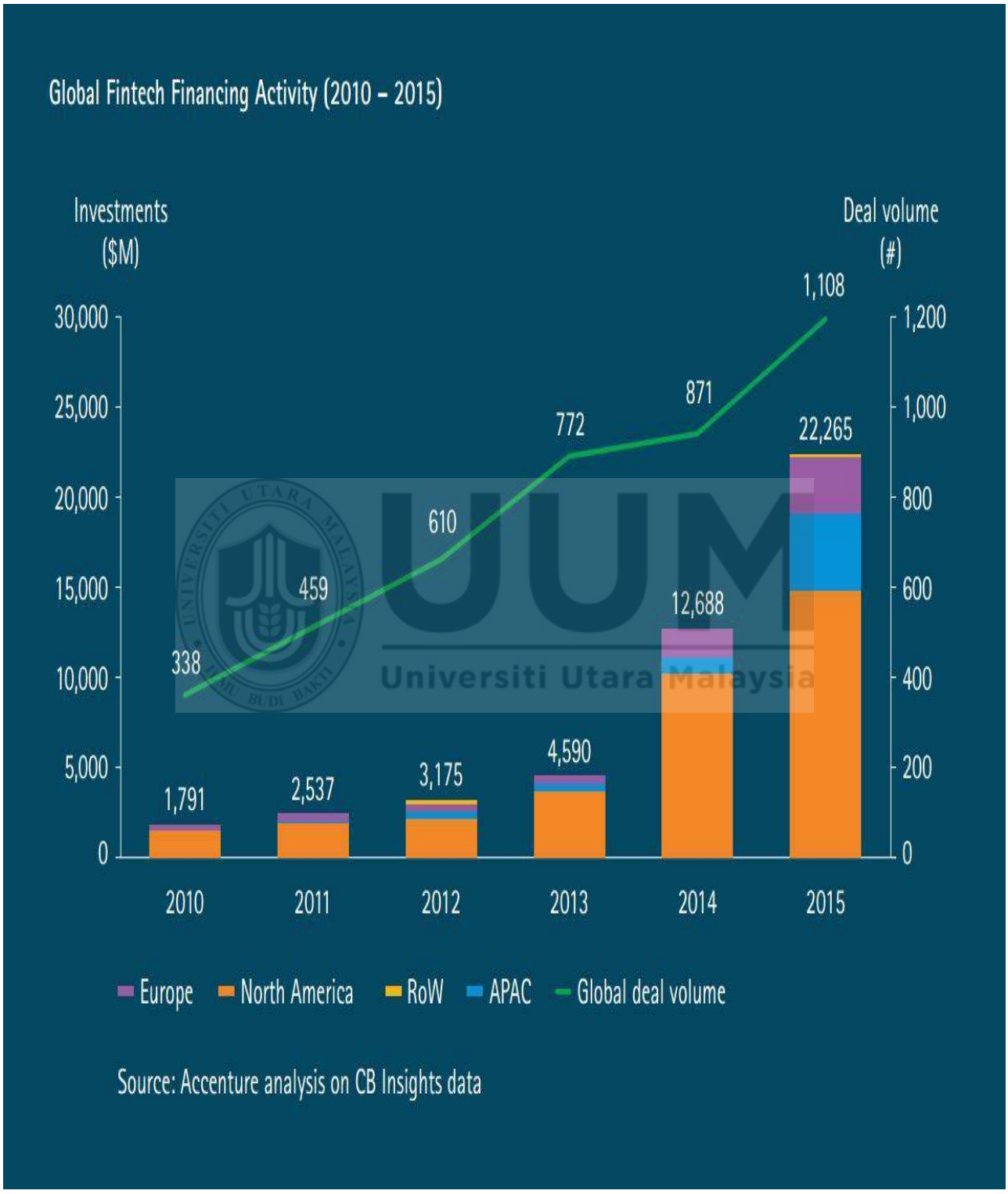
Phillips-Peron results (non-parametric)

Cross ID	AR(1)	Variance	HAC	Bandwidth	Obs
Cambodia	0.019	1.814640	1.756148	1.00	14
Brunei Darus...	0.097	2.567106	1.825379	4.00	13
Indonesia	-0.066	0.142854	0.017607	12.00	13
Malaysia	-0.068	0.952472	0.902911	2.00	15
Lao PDR	Dropped from Test				
Myanmar	Dropped from Test				
Philippines	0.420	0.824015	0.617878	3.00	13
Singapore	-0.431	9.637069	1.066425	15.00	16
Vietnam	0.380	0.266099	0.329663	1.00	14
Thailand	-0.252	4.438635	1.308875	5.00	13

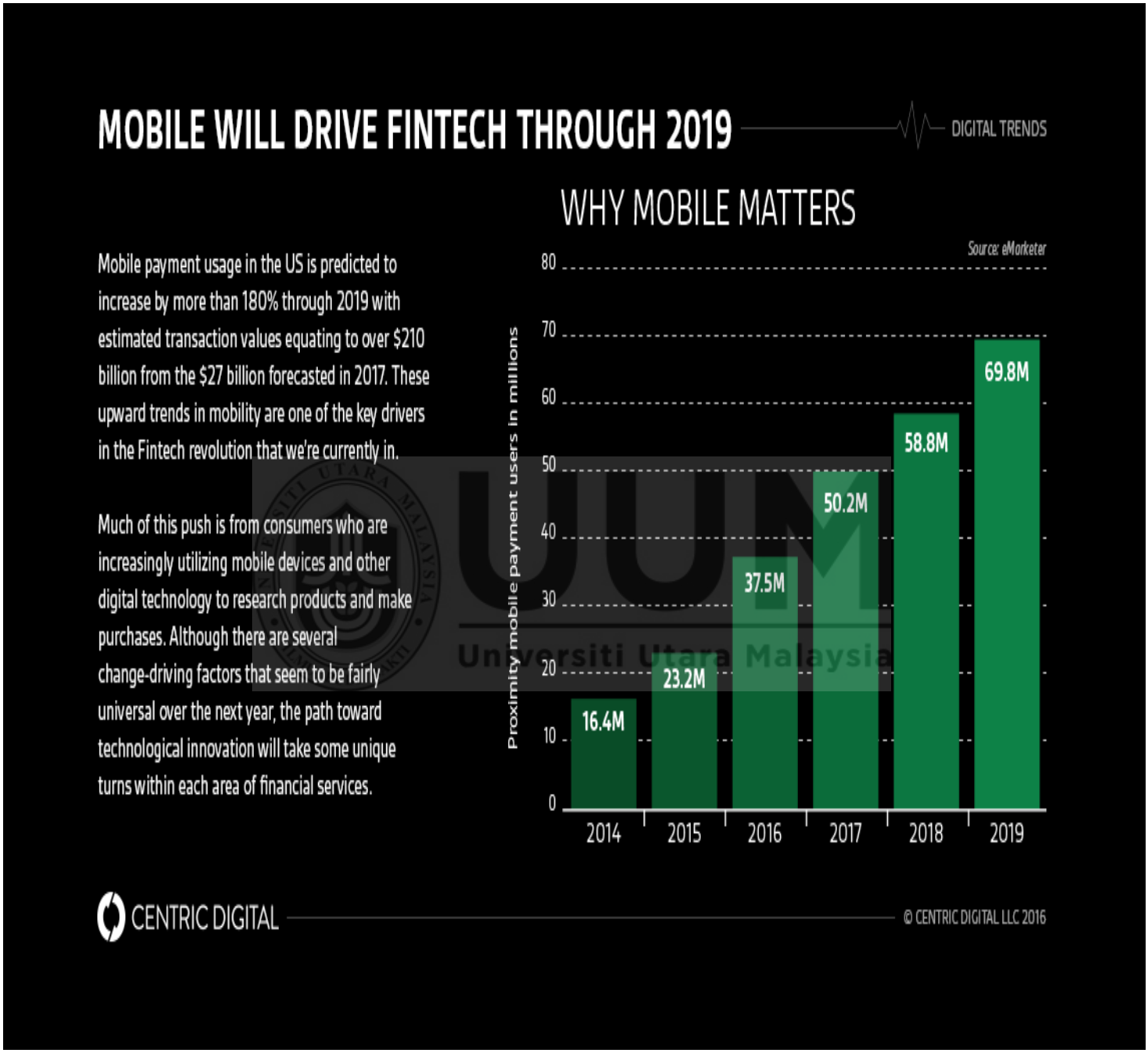
Augmented Dickey-Fuller results (parametric)

Cross ID	AR(1)	Variance	Lag	Max lag	Obs
Cambodia	-0.103	1.898279	1	--	13
Brunei Darus...	-0.421	1.341089	1	--	11
Indonesia	-0.520	0.126293	1	--	12
Malaysia	-0.261	0.879654	1	--	14
Lao PDR	Dropped from Test				
Myanmar	Dropped from Test				
Philippines	0.164	0.532003	1	--	11
Singapore	-1.058	7.911282	1	--	15
Vietnam	0.059	0.195256	1	--	13
Thailand	-0.617	4.034831	1	--	12

APPENDIX E



APPENDIX F



APPENDIX G

CORRELATION TEST

	GDP	MOBILE USER	BROADBAND	EXPORT	IMPORT	INFLATION
GDP	1.00	-0.31	-0.13	-0.04	-0.07	0.32
MOBILE USER	-0.31	1.00	0.78	0.38	0.30	-0.35
BROADBAND	-0.13	0.78	1.00	0.32	0.25	-0.27
EXPORT	-0.04	0.38	0.32	1.00	0.95	-0.22
IMPORT	-0.07	0.30	0.25	0.95	1.00	-0.18
INFLATION	0.32	-0.35	-0.27	-0.21	-0.18	1.00

Country Name	Time	GDP	MOBILE USER
Brunei Darussalam	1998	-0.558508851	15.39023
Brunei Darussalam	1999	3.052157142	20.22746706
Brunei Darussalam	2000	2.849421858	28.50789669
Brunei Darussalam	2001	2.744040518	42.04553139
Brunei Darussalam	2002	3.872096967	44.29565222
Brunei Darussalam	2003	2.903955477	50.18973426
Brunei Darussalam	2004	0.504318253	56.3118354
Brunei Darussalam	2005	0.387507208	63.78061004
Brunei Darussalam	2006	4.397719678	81.40445645
Brunei Darussalam	2007	0.154581812	97.67222246
Brunei Darussalam	2008	-1.939714638	105.1693861
Brunei Darussalam	2009	-1.764535541	107.5852329
Brunei Darussalam	2010	2.598965746	111.9492001
Brunei Darussalam	2011	3.745318352	112.4737001
Brunei Darussalam	2012	0.912841671	117.5090307
Brunei Darussalam	2013	-2.126028517	115.5522582
Brunei Darussalam	2014	-2.34974675	109.8007306
Brunei Darussalam	2015	-0.566814609	110.9790153
Brunei Darussalam	2016	-2.465514923	123.6904413
Brunei Darussalam	2017	1.328751616	127.0669027
Cambodia	1998	4.681632108	0.528939304
Cambodia	1999	12.70538113	0.749913579
Cambodia	2000	10.7119948	1.074252774
Cambodia	2001	7.446606976	1.801721318
Cambodia	2002	6.578939503	3.007583305
Cambodia	2003	8.505895557	3.877563151
Cambodia	2004	10.34052878	6.594772546
Cambodia	2005	13.25008691	8.002893099
Cambodia	2006	10.77108367	12.77710791
Cambodia	2007	10.21257391	18.8884696
Cambodia	2008	6.691577475	30.52481721
Cambodia	2009	0.086696959	44.48479398
Cambodia	2010	5.963078575	56.96353418
Cambodia	2011	7.069569946	94.62861382
Cambodia	2012	7.313345505	129.2907102
Cambodia	2013	7.356665149	134.8926943
Cambodia	2014	7.142571101	133.9287751
Cambodia	2015	7.036087179	134.3667576
Cambodia	2016	6.863092098	126.3484045
Cambodia	2017	7.09986595	116.0421129
Myanmar	1998	5.866213153	0.018941309
Myanmar	1999	10.94512998	0.025009094
Myanmar	2000	13.74593056	0.029063598
Myanmar	2001	11.34399707	0.048621007
Myanmar	2002	12.02551343	0.101785694
Myanmar	2003	13.84399689	0.139668552
Myanmar	2004	13.56466162	0.192313025
Myanmar	2005	13.56895002	0.265455984
Myanmar	2006	13.07610138	0.438545472

Myanmar	2007	11.99143524	0.50362622
Myanmar	2008	10.25530539	0.7425017
Myanmar	2009	10.5500091	1.008028202
Myanmar	2010	9.634439452	1.184307424
Myanmar	2011	5.591482378	2.460028559
Myanmar	2012	7.332670447	7.314908801
Myanmar	2013	8.426001025	13.28011579
Myanmar	2014	7.990915597	55.9071725
Myanmar	2015	6.99284029	78.22680698
Myanmar	2016	5.862472915	95.65321489
Myanmar	2017	6.758628824	89.84575762
Philippines	1998	-0.576718146	2.321015181
Philippines	1999	3.081916458	3.733477021
Philippines	2000	4.41122216	8.275713751
Philippines	2001	2.893987062	15.26280666
Philippines	2002	3.645903318	18.90917206
Philippines	2003	4.970368696	27.10951497
Philippines	2004	6.697623613	38.89520684
Philippines	2005	4.77766782	40.3121444
Philippines	2006	5.242960356	48.8204016
Philippines	2007	6.616662284	64.22059996
Philippines	2008	4.152756843	75.05869742
Philippines	2009	1.14833222	81.96261716
Philippines	2010	7.63226478	88.71560124
Philippines	2011	3.659751601	98.85792556
Philippines	2012	6.683818881	105.2770519
Philippines	2013	7.064024264	104.4095161
Philippines	2014	6.145298786	111.2123315
Philippines	2015	6.066548905	115.8496776
Philippines	2016	6.875714823	116.2375503
Philippines	2017	6.684517503	110.3956258
Indonesia	1998	-13.12672549	0.518103775
Indonesia	1999	0.791126082	1.064638219
Indonesia	2000	4.920067747	1.734574813
Indonesia	2001	3.643466447	3.039976383
Indonesia	2002	4.499475391	5.379111033
Indonesia	2003	4.780369122	8.386149336
Indonesia	2004	5.030873945	13.56646675
Indonesia	2005	5.692571304	20.69137097
Indonesia	2006	5.500951785	27.7599696
Indonesia	2007	6.345022227	40.08207447
Indonesia	2008	6.0137036	59.52687753
Indonesia	2009	4.628871183	68.38666086
Indonesia	2010	6.223854181	87.12132731
Indonesia	2011	6.169784208	101.6678806
Indonesia	2012	6.030050653	113.2915475
Indonesia	2013	5.557263689	124.2804831
Indonesia	2014	5.006668426	127.6139203
Indonesia	2015	4.8763223	131.2928284
Indonesia	2016	5.033279592	147.6639506

Indonesia	2017	5.067680274	173.840223
Singapore	1998	-2.225229743	29.33719958
Singapore	1999	6.095204493	42.7082946
Singapore	2000	8.897544418	70.19489213
Singapore	2001	-0.952290066	74.44052037
Singapore	2002	4.211686552	80.19446128
Singapore	2003	4.435328147	84.17866964
Singapore	2004	9.549175476	91.31953026
Singapore	2005	7.489157459	97.62990415
Singapore	2006	8.860196114	103.8313702
Singapore	2007	9.111527148	125.1783402
Singapore	2008	1.787620228	132.233681
Singapore	2009	-0.603388298	138.652201
Singapore	2010	15.24037704	145.5308093
Singapore	2011	6.350673205	150.5848995
Singapore	2012	4.08329765	153.0575656
Singapore	2013	5.111087259	157.4026593
Singapore	2014	3.883887305	148.7388273
Singapore	2015	2.241057968	148.7391202
Singapore	2016	2.397021458	150.4805285
Singapore	2017	3.618542336	148.2401691
Lao PDR	1998	3.967608091	0.12528241
Lao PDR	1999	7.306376073	0.230439717
Lao PDR	2000	5.798782326	0.23794852
Lao PDR	2001	5.751412882	0.545657567
Lao PDR	2002	5.918743682	1.003406598
Lao PDR	2003	6.067002304	2.012220825
Lao PDR	2004	6.35769548	3.604682056
Lao PDR	2005	7.107568369	11.42726849
Lao PDR	2006	8.619266209	17.25942138
Lao PDR	2007	7.596828801	24.8480996
Lao PDR	2008	7.824902763	33.41159151
Lao PDR	2009	7.501774913	52.57839844
Lao PDR	2010	8.526905517	64.0925294
Lao PDR	2011	8.038652681	86.53765295
Lao PDR	2012	8.026098434	67.02863167
Lao PDR	2013	8.026300226	71.02273488
Lao PDR	2014	7.611963441	70.22973218
Lao PDR	2015	7.269591775	55.93007889
Lao PDR	2016	7.023091874	58.57211069
Lao PDR	2017	6.892747966	54.12257807
Thailand	1998	-7.633733631	3.209487341
Thailand	1999	4.572298369	3.754656947
Thailand	2000	4.455676031	4.854028051
Thailand	2001	3.444243766	11.88165768
Thailand	2002	6.148879817	27.23431919
Thailand	2003	7.189329965	33.48606006
Thailand	2004	6.289288549	41.4840346
Thailand	2005	4.187834924	46.5571558
Thailand	2006	4.967916824	60.95857138

Thailand	2007	5.43509257	80.02643982
Thailand	2008	1.725667908	92.92427346
Thailand	2009	-0.690733346	98.61015543
Thailand	2010	7.513590658	106.7215773
Thailand	2011	0.839959472	114.6880659
Thailand	2012	7.242786605	125.3051505
Thailand	2013	2.687379919	137.7234793
Thailand	2014	0.984414064	141.9184173
Thailand	2015	3.020173993	149.9353313
Thailand	2016	3.282683075	173.7770745
Thailand	2017	3.912880243	176.0347306
Malaysia	1998	-7.359415193	9.948690083
Malaysia	1999	6.137612015	13.19722041
Malaysia	2000	8.858868177	22.09020354
Malaysia	2001	0.517675319	31.16177468
Malaysia	2002	5.390988299	37.41092899
Malaysia	2003	5.788499284	45.05704492
Malaysia	2004	6.783437734	58.03979001
Malaysia	2005	5.332139149	76.1709367
Malaysia	2006	5.584847072	74.44937695
Malaysia	2007	6.29878593	87.68548003
Malaysia	2008	4.831769887	102.2202407
Malaysia	2009	-1.513528719	109.1960941
Malaysia	2010	7.424847386	120.4409218
Malaysia	2011	5.29391284	128.0291117
Malaysia	2012	5.473454192	141.6662804
Malaysia	2013	4.69372252	144.7652053
Malaysia	2014	6.00672195	148.6323102
Malaysia	2015	5.091515721	143.5529652
Malaysia	2016	4.223410194	139.3677836
Malaysia	2017	5.897009293	133.8797956
Vietnam	1998	5.764455464	0.283864597
Vietnam	1999	4.773586881	0.413988301
Vietnam	2000	6.787316408	0.982192788
Vietnam	2001	6.192893312	1.542021505
Vietnam	2002	6.320820988	2.321216856
Vietnam	2003	6.899063492	3.31368879
Vietnam	2004	7.536410612	5.938151423
Vietnam	2005	7.547247727	11.37864032
Vietnam	2006	6.977954812	22.2017334
Vietnam	2007	7.129504484	52.42084402
Vietnam	2008	5.661771208	86.35014282
Vietnam	2009	5.397897543	112.1721275
Vietnam	2010	6.423238217	126.1071925
Vietnam	2011	6.240302749	142.3555707
Vietnam	2012	5.247367156	145.5732292
Vietnam	2013	5.421882991	135.2334793
Vietnam	2014	5.983654637	147.1157265
Vietnam	2015	6.679288789	128.5903997
Vietnam	2016	6.210811668	127.5260848

Vietnam	2017	6.81224566	125.6177267

ase: World Development Indicators
: Updated: 03/21/2019

BROADBAND	EXPORT	IMPORT
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0.794829142	0.695290077	4.410580728
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2.421066847	1.759368819	6.055889983
3.098990567	2.255328138	6.269312055
4.453766889	2.417479311	5.362037012
5.218984189	2.371024872	4.71387863
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5.884323614	..	4.334248999
4.965378188	..	4.116482147
6.79218961	..	4.866520008
7.349697841	..	4.922522129
8.244679577	0.012459798	4.477221634
8.534107128	0.003013532	4.415178462
9.612616837	0.005154067	..
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..	1.360883835	..
..	1.867221606	2.096295499
..	4.424166055	1.892192183
0.000395735	5.038074453	2.282417541
0.003259908	5.83258079	1.778501942
0.005970891	4.689826062	1.978595737
0.007535681	3.035130785	2.323052985
0.021522152	2.742593064	1.421806407
0.061783941	2.760899843	2.479148488
0.11954893	2.684965301	3.503150845
0.212913819	2.373787381	5.367650414
0.249260242	4.129675258	2.546432713
0.151328742	2.611329693	2.116838612
0.201219934	2.077938194	1.622991449
0.217324565	1.657817228	1.656001258
0.432924557	1.944986162	2.76815783
0.538123238	2.18912916	2.513669891
0.613524489	1.832355261	2.244556532
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0.04666602	..	..
0.045757332	..	1.687069786
0.043316888	..	1.328808714
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..	2.920853768	1.20025089
..	6.045954523	1.825563421
0.062821937	9.269188811	3.46036173
0.169586124	5.770490136	3.084191183
0.758717218	2.703881108	..
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..	3.786707883	..
..	4.591564335	38.08247485
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0.066239559	8.136251324	48.83364415
0.105103429	7.711701023	48.33323803
0.142568633	7.588732048	45.80530001
0.301824113	9.157559265	44.18326201
0.55564073	10.10993569	42.67737997
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1.867697444	13.46919176	33.19878069
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1.879763563	14.66569949	13.16044875
2.216036352	14.69321151	24.75043655
2.612482777	14.29544972	23.01210173
2.897037808	13.61807867	20.88897768
2.851065481	11.90759276	27.47470381
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3.239947468	16.05664029	..
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0.047725595	8.81385004	3.600828906
0.084566882	13.33850225	3.499214449
0.334251629	13.53158961	4.95202508
0.41563559	9.200230208	9.061360404
0.778732045	9.593853323	8.901518256
0.940242963	7.436710737	8.49366481
1.113673322	7.57331593	7.405550286
1.198554027	5.468282262	7.076612996
1.29023164	4.535658204	7.093096042
1.332648112	4.844185272	6.996927942
1.542829021	4.370320869	7.631788206
2.001946985	4.160495547	7.966882164

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0.785656633	2.336551549	..
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9.815745906	2.617991659	38.86980304
12.47585834	2.601710682	39.20724408
14.61130847	2.254718629	11.27896976
17.08406143	2.635371541	11.26063359
19.56670938	2.530299942	28.86140293
22.08154878	2.897046364	26.57948092
24.84131565	3.19618283	26.59440495
26.37630137	3.513991011	27.85183461
27.20624758	4.131289725	23.54167751
27.18291438	5.167076693	23.41052522
27.85759015	5.367787473	24.86669798
27.05410196	5.167784216	24.48286833
26.84967758	5.956791685	28.01313111
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0.138962519	5.120401835	3.294971603
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3.923751112	1.449035606	15.70459825
4.838429808	1.370974217	14.18205751
5.767795797	1.350837532	11.91912197
6.660871114	0.952892724	11.81851645
7.619263971	0.916728497	11.30120504
7.951266686	0.950577984	12.62279873
9.072557153	0.80242822	13.87393428
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1.882741342	5.317088827	38.0377107
2.872599706	5.338131728	36.06911224
3.887951725	5.018322608	33.50255385
4.903163354	5.292647854	23.35786828
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7.462216969	6.140949829	29.80317802
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9.892709812	6.787439515	22.62445474
10.1263672	6.563602866	23.08427384
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Indicator Name
Mobile cellular subscriptions
Mobile cellular subscriptions (per 100 people)
Fixed broadband subscriptions
Fixed broadband subscriptions (per 100 people)
GDP per capita growth (annual %)
ICT goods imports (% total goods imports)
ICT service exports (% of service exports, BoP)
Inflation, consumer prices (annual %)
Inflation, GDP deflator: linked series (annual %)
Inflation, GDP deflator (annual %)
GDP growth (annual %)

Long definition
Mobile cellular telephone subscriptions are subscriptions to a p
Mobile cellular telephone subscriptions are subscriptions to a p
Fixed broadband subscriptions refers to fixed subscriptions to h
Fixed broadband subscriptions refers to fixed subscriptions to h
Annual percentage growth rate of GDP per capita based on cons
Information and communication technology goods imports inclu
Information and communication technology service exports incl
Inflation as measured by the consumer price index reflects the a
Inflation as measured by the annual growth rate of the GDP imp
Inflation as measured by the annual growth rate of the GDP imp
Annual percentage growth rate of GDP at market prices based o

Source
International Telecommunication Union, World Telecommunica
International Telecommunication Union, World Telecommunica
International Telecommunication Union, World Telecommunica
International Telecommunication Union, World Telecommunica
World Bank national accounts data, and OECD National Account
United Nations Conference on Trade and Development's UNCTA
International Monetary Fund, Balance of Payments Statistics Ye
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